

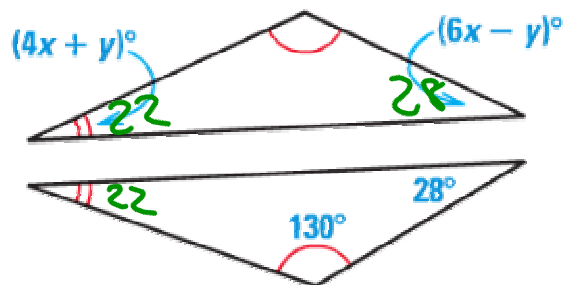
## 10/07/13 Agenda

- Warm Up
- Review Homework - Worksheet 6
- Section 4.5 - ASA & AAS Congruence
- Start Homework
  - Worksheet 7 - ASA and AAS Congruence

Warm Up:

$$\begin{array}{r} 6x - y = 28 \\ + 4x + y = 22 \\ \hline 10x = 50 \\ x = 5 \end{array}$$

Find the values of  $x$  and  $y$ .



$$\begin{array}{l} 4x + y = 22 \\ 4(5) + y = 22 \\ 20 + y = 22 \\ y = 2 \end{array} \quad y = 2$$

## Section 4.5 - ASA and AAS Congruence

Target 4E & 4F

Goal: Prove triangles congruent by ASA and AAS.

**ASA:**  
(Angle, Side,  
Angle)

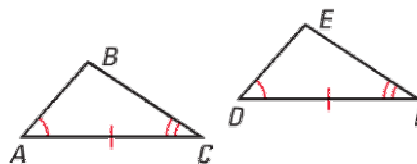
### THEOREMS

*For Your Notebook*

#### POSTULATE 21 Angle-Side-Angle (ASA) Congruence Postulate

If two angles and the included side of one triangle are congruent to two angles and the included side of a second triangle, then the two triangles are congruent.

If **Angle**  $\angle A \cong \angle D$ ,  
**Side**  $\overline{AC} \cong \overline{DF}$ , and  
**Angle**  $\angle C \cong \angle F$ ,  
then  $\triangle ABC \cong \triangle DEF$ .

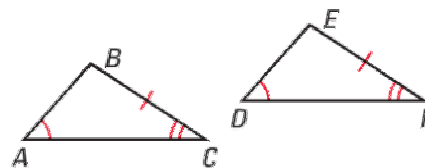


**AAS:**  
(Angle, Angle,  
Side)

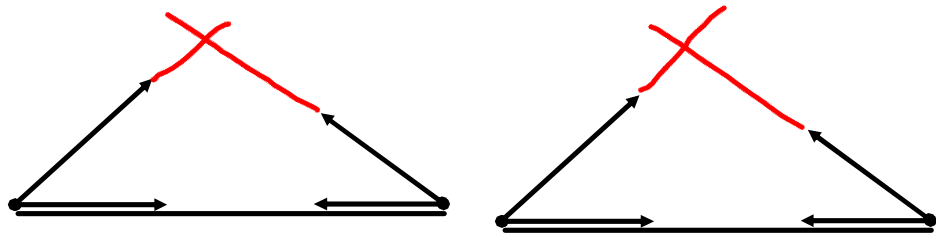
#### THEOREM 4.6 Angle-Angle-Side (AAS) Congruence Theorem

If two angles and a non-included side of one triangle are congruent to two angles and the corresponding non-included side of a second triangle, then the two triangles are congruent.

If **Angle**  $\angle A \cong \angle D$ ,  
**Angle**  $\angle C \cong \angle F$ , and  
**Side**  $\overline{BC} \cong \overline{EF}$ ,  
then  $\triangle ABC \cong \triangle DEF$ .



*Proof:* Example 2, p. 250

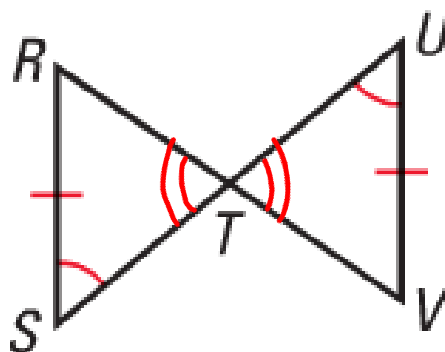


## Section 4.5 - ASA and AAS Congruence

Target 4E & 4F

In the diagram at the right, what postulate or theorem can you use to prove that  $\triangle RST \cong \triangle VUT$ ? *Explain.*

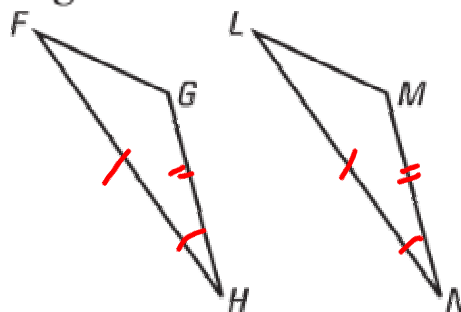
SSS  
SAS  
ASA  
AAS ←



8. **GIVEN** ►  $\overline{GH} \cong \overline{MN}$ ,  $\angle G \cong \angle M$ ,  $\underline{\quad} \cong \underline{\quad}$   $\angle F \cong \angle L$   
Use the AAS Congruence Theorem.

9. **GIVEN** ►  $\overline{FG} \cong \overline{LM}$ ,  $\angle G \cong \angle M$ ,  $\underline{\quad} \cong \underline{\quad}$   $\angle F \cong \angle L$   
Use the ASA Congruence Postulate.

10. **GIVEN** ►  $\overline{FH} \cong \overline{LN}$ ,  $\angle H \cong \angle N$ ,  $\underline{\quad} \cong \underline{\quad}$   $\overline{MN} \cong \overline{GH}$   
Use the SAS Congruence Postulate.

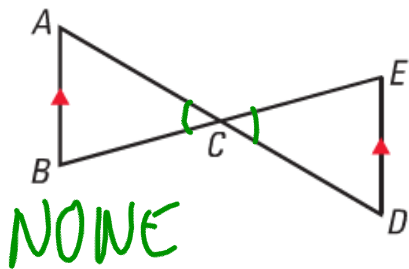


## Section 4.5 - ASA and AAS Congruence

Target 4E & 4F

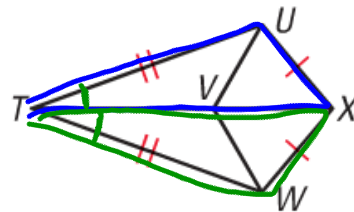
**IDENTIFY CONGRUENT TRIANGLES** Is it possible to prove that the triangles are congruent? If so, state the postulate(s) or theorem(s) you would use.

18.  $\triangle ABC, \triangle DEC$



SSS  
SAS  
ASA  
AAS

19.  $\triangle TUV, \triangle TWV$

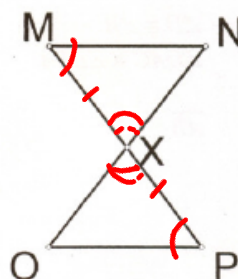


## Section 4.5 - ASA and AAS Congruence

Target 4E & 4F

Given:  $\angle M \cong \angle P$   
 $X$  is the midpoint of  $\overline{MP}$

Prove:  $\overline{MN} \cong \overline{PO}$



Statements	Reasons
1. $\angle M \cong \angle P$	1. GIVEN
2. $X$ IS MIDPOINT	2. 1 "
3. $MX \cong XP$	3. DEFN OF MIDPT.
4. $\angle MXN \cong \angle PXO$	4. VERTICAL $\angle$ s
5. $\triangle MXN \cong \triangle PXO$	5. ASA

6.  $\overline{MN} \cong \overline{PO}$

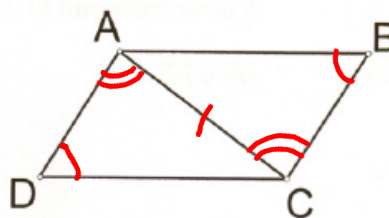
6. CPCTC

## Section 4.5 - ASA and AAS Congruence

Target 4E & 4F

Given:  $\angle D \cong \angle B$   
 $\angle DAC \cong \angle BCA$

Prove:  $\overline{AB} \cong \overline{CD}$



SSS

SAS

ASA

AAS

~~HL~~

Statements	Reasons
1.	1.
2.	2.
3.	3.
4.	4.
5.	5.